ABSTRACT

THESIS: The Relationship between Indices of Nutrition Markers, Sarcopenia, and Adiposity on Long-Term Survival of Pediatric Transplant Patients

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Purpose: There is a knowledge gap in the medical community regarding factors that affect long-term survival of pediatric organ transplant patients. The purpose of this study was to explore the associations between long-term survival and common nutrition markers, sarcopenia, and adiposity. **Methods:** Data from pediatric transplant (kidney, liver, and/or intestine) patients who had an abdominal computed tomography (CT) scan within one year before or after transplant (n = 81) were analyzed to determine what factors – or combination of factors – are most strongly associated with survival. Those results were compared to data from pediatric trauma patients (< 18 years of age at time of trauma) who had an abdominal CT scan as part of routine trauma care (n = 39; control group). Levels of sarcopenia and adiposity were measured using available CT abdominal scans to obtain a measurement by tracing the outline of adipose tissue and psoas muscle tissue. Malnutrition was assessed from information in patient charts (height, weight, serum biological markers). **Results:** Current methods of malnutrition assessment (total protein and serum albumin) do not account for much variability in survival (11%, $p > 0.05$) nor do total psoas area (14%, $p > 0.05$) or BMI (13%, $p = 0.054$). Associations between long-term survival and common nutritional markers were not significant. **Conclusion:** Sarcopenia and

amount of adipose tissue were not indicative of the patient's ability to undergo and survive organ transplant long-term. It is important to note that the current means of assessing patient suitability (total protein and serum albumin) to undergo and survive organ transplant are also not predictive of long-term survival. New methods must be explored to identify markers that suggest patient suitability to survive long-term.